ATOMIC ENERGY newsletter

THE FIRST AND ONLY ATOMIC NEWS SERVICE

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Dear Sir:

A two day conference on Electronic Instrumentation and Nucleonics in Medicine, sponsored by the AIEE, will be held in New York the 24th and 25th of this month (Nov.). The first day, devoted to electronic instrumentation in medicine, will hear eight papers covering methods of measurement, analysis of data obtained, and a number of novel electronic instruments and accessories important in the medical field. Nucleonics in medicine will be the subject of eight papers the second day. Topics will include isotope measuring techniques, use of nuclear instruments, effects of radiation, and other pertinent material. Inquiries concerning attendance, the complete program, etc., should be directed to R. S. Gardner, 33 W. 39th St., New York 18, N.Y.

Vitro Chemical (subsidiary of Vitro Corp. of America) has stated its intentions to increase the capacity of its uranium reduction facilities near Salt Lake City, Utah. Now, the plant mills about 165 tons of ore daily. Under its projected expansion, it will be able to handle 350 tons per day. (Vitro, pioneer United States uranium processor, handled Belgian Congo uranium ore at the inception of the World War II U.S. atomic bomb project, at eastern facilities. Now, through consolidation with Kellex Corp., nuclear engineering firm, which is operated under the Vitro name, its role in U.S. nuclear activities continues large.)

T. Keith Glennan, for more than two years a member of the U.S. Atomic Energy Commission, has now resigned. Dr. Glennan, who came to the Commission from the presidency of Case Institute of Technology, Cleveland, plans to return to Case.

Some problems in keeping photographic film packaging paper free from radioactive particle contamination were outlined at the Packaging Institute's opening meeting in New York last week. W. A. Schenk and C. E. Peterson, Riegel Paper Corp., told the Institute that the recent experimental nuclear detonations, and the subsequent clouds which carried radioactive particles distances from the site of the detonation, made it imperative to carefully watch the direction in which the clouds travelled. If they contaminated the source of pulp and the water used in the paper making, then that particular paper must not of course be used for photographic purposes. (Other BUSINESS news, page 2, this Letter.)

An atomic air burst direction finder, developed at General Electric Co., Schenectady, N.Y., on a project covered by a USAEC contract, was the subject of a recent U.S. patent grant. The device, coated with a paint that will be scorched by an atomic bomb blast, is marked in such a manner that the scorch may be read to indicate both azimuth and elevation of the place of the explosion. Plotting the readings from two, or preferably three, of these indicators can pinpoint the explosion. (Other PATENT news, page 5, this Letter.)

The National Research Council has released plans for a model laboratory designed for the handling of radioactive materials. The book is available from the Building Research Advisory Board, NRC, 2101 Constitution Ave.,N.W., Washington 25, D.C.

Subscription rates: United States, U.S. possessions, and Canada, $18.00 a year. Latin America, $20.00 a year. All other countries, $25.00 a year.
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BUSINESS NEWS ...in the nuclear energy field...

ATOMIC RESEARCH FACILITIES BEING ESTABLISHED- New laboratory facilities of Walter Kidde Nuclear Laboratories, under construction at Garden City, Long Island, New York, since last Spring, will utilize a staff of 40 in initial operations, now being inaugurated. However, while research operations are starting, installation of certain specialized equipment needed to carry on nuclear research and development projects will continue for several months. It is estimated that a minimum staff of 100 will be required when the laboratory is in full operation within the next 6-to 12-months. Typical activities to be undertaken by the laboratory include: corrosion studies in connection with liquid metals and under special conditions encountered in the atomic field; measurement of physical and thermodynamic properties; development of special types of instruments and instrumentation systems; application of liquid metals as heat transfer elements; and measurements with radioactive sources. Studies will also be made by the laboratory of: fabrication of special metals and alloys for jacketing reactor fuel elements; accumulation of original data in connection with such elements as bismuth, zirconium, beryllium, and molybdenum; development of isotope separation methods; exponential studies for reactor design; etc.

CONTRACT AWARDED FOR NUCLEAR FACILITIES' INSTRUMENTATION- A substantial contract, which it is estimated will take several years to complete, has been awarded the Taylor Instrument Companies, Rochester, N.Y., by the USAEC. The agreement deals with the manufacture and procurement of industrial process control instruments for the Commission's uranium-235 production plant additions now being built at Oak Ridge, Tenn., and Paducah, Ky., and for the new $1,219,000,000 atomic energy installation in Pike County, Ohio, on which work recently started.

During World War II, Taylor Instrument acted as prime contractor for the design, development, manufacture, and procurement of instrumentation for the Oak Ridge, Tenn., uranium-235 producer plants, and as a result has an accumulation of engineering data and experienced manpower in this field. Taylor has also been handling other contracts with the USAEC and certain Government agencies since the start of the Korean hositilities.

NEW COMPANIES TO JOIN IN NUCLEAR POWER STUDIES- Eleven additional companies are now to become associated with the Dow Chemical Co., and the Detroit Edison Co., in their study under USAEC auspices of the development of a nuclear reactor to produce economic electric energy. These companies are: Cincinnati Gas & Electric Co.; Cleveland Electric Illuminating Co.; Consolidated Edison Co. of N.Y.; Consumers Power Co.; General Public Utilities Corp.; New England Electric System; Philadelphia Electric Co.; Public Service Electric and Gas Co. of New Jersey; Toledo Edison Co.; Vitro Corp. of America; Wisconsin Electric Power Co.

Last Spring the USAEC accepted a proposal from the Dow-Detroit Edison Companies for a jointly-financed research and development program for a type of reactor to produce fissionable material and power. Most of the work by the two companies, estimated at about $275,000 in direct costs, not including overhead, will be carried on in their own laboratories. The new firms, which now are associated with this project, will assign one or more men on essentially a full-time basis to work on the project; they will function as if they were regular employees of either Dow or Detroit Edison. The USAEC has pointed out that if other firms feel they can make a contribution to development work on the project, they may become associated with it. The Commission has reserved the right to designate or approve additional associated companies.

EXPRESSES VIEWS ON NUCLEAR POWER- There is no sound basis for an atomic-electric power industry so long as it must rely on Government guaranteeing the market and price for plutonium, Harry A. Winne, General Electric engineering vice-president told a machine tool conference of the American Institute of Electrical Engineers in Albany, N.Y., last week. He said nuclear-generated electric power will be really economically sound only when it can compete with conventional electric power without requiring that part of the operating cost be Government-subsidized through its purchase of the plutonium which is produced, simultaneously, with the heat for electric power production.

URANIUM EXPLORATION; A special digest of remarks by Phillip L. Merritt, Ass't. Dir., Div. of Raw Materials, USAEC, delivered before joint ASEE-USAEC meeting, Albuquerque, N.M., Oct. 17, 1952.

Uranium, the fundamental material required for our ever-expanding atomic energy program, was little known and little sought ten years ago.

Today, uranium is the very heart of the multi-billion dollar atomic energy program.

In the development of its uranium exploration program, the USAEC established a fundamental cornerstone: to obtain, wherever possible, the interest, support, and cooperation of private industry by offering a profit incentive. It did this by establishing a guaranteed price schedule for uranium ores, and has offered a bonus for the initial production of uranium from a new mine.

The Commission is gratified by the manner in which American industry has accepted the problem of uranium exploration. New mines and districts have been discovered and developed by prospectors and the mining industry. All of our domestic uranium is produced in privately owned or operated mines. Seven of the eight processing plants operating in the western U.S. are operated under unit price contracts with the Commission. (The eighth plant, at Monticello, Utah, is operated for the USAEC by the Galigher Co., Salt Lake City, Utah.) At present, three more plants are either planned or under construction by private industry. We estimate that since 1947, some 2,500,000 feet of drilling has been carried out by private industry in the search for uranium. Additionally, this extensive exploration has been supplemented by 2,250,000 feet of drilling under USAEC auspices directly, or financed by the USAEC.

Our greatest success in developing uranium ore in our domestic program has been in Triassic and Jurassic sedimentary rocks of the Colorado Plateau, and in the Cretaceous sedimentary rocks of the Black Hills of South Dakota. Further production has come from veins in igneous rocks, such as occur in the Marysvale area of central Utah, the Colorado Front Range, and the Boulder Batholith of Montana. Uranium also occurs in certain marine sediments, particularly the phosphates of Florida and Idaho, and in black shales such as the Chattanooga formation of central Tennessee.

Concerning foreign developments--here is a brief picture. In Africa, continued exploration and development of the pitchblende veins in the Shinkolobwe pits has been satisfactory. A steady flow of raw material from this all-important source is being maintained.

Perhaps the most important large source of uranium developed in these post-World War II years is in South Africa, where the occurrence of uranium as a minor metal in the Witwatersrand gold ores has been known for many years. The realization that the quantity of uranium could be important, coupled with intensive sampling and metallurgical research, has resulted in the development of this area as a potentially large by-product source of uranium. Plans have been announced for the construction of plants for the treatment of current tailings from 13 mines. The first of such plants will begin production this year.

In Canada, development at the Canadian government-owned Eldorado mines has had gratifying results, and one can see many more years of production ahead. The most significant in Canada, however, has been in the Beaverlodge Lake area of northern Saskatchewan. There, Eldorado has succeeded in developing sufficient ore to warrant the construction of a leech plant. Hundreds of radioactive anomalies are known in the area, and as exploration of these pitchblende veins proceeds--both by Eldorado and by privately owned concerns--I believe we will see important additions to our uranium supply from this area.

A number of pitchblende-bearing siliceous veins occur in a granitic batholith of Carboniferous age in northcentral Portugal. Several of these vein deposits were worked around the beginning of the century for their radium content, and in recent years selected properties have received intensive exploration. While this exploration has been proceeding in the European, African and North American continents, the Radium Hill deposits in South Australia have been developed into a potentially significant producer. Furthermore, within the past year, important copper-uranium areas have been discovered at Rum Jungle, some 60 miles south of Darwin, in the Northern Territory of Australia. These deposits show promise of developing into important uranium producers.

RAW MATERIALS...radioactive & other minerals for nuclear energy work...

UNITED STATES- Salida, Colo.: The discovery of radioactive ore in Fremont county, here, has been reported by the Colorado Western Land Co., of Salida, Colorado. Western said that preliminary tests indicated the deposit contains thorite and torberite, copper-uranium ores. The discovery has been reported to the U. S. Bureau of Mines and the U. S. Geological Survey. Six claims have been located by the company, whose engineers report a vein 2-to 8-feet in width and exposed for two miles on the surface. Further tests are being conducted to determine the value of the discovery.

CANADA- At Radiore Uranium Mines, where an extensive drilling program in the Bolger-Radiore area is now being carried out by Eldorado Mining & Refining, the first diamond drill hole has now been completed at a depth of 1,303-ft., according to Radiore president J. J. Byrne. First uranium values were said to have been encountered at a depth of 505-ft., and the hole went through fairly continuous values to 650-ft. Several additional intersections were cut at intervals to a depth of 1,022-ft. Sections of ore grade included: 4-ft., averaging 0.18% uranium oxide; 11-ft., averaging 0.11% uranium oxide; 14-ft., averaging 0.23% uranium oxide; and 6-ft., averaging 0.128% uranium oxide.....Baska Uranium Mines continues to press exploration on its Raggs Lake group in the Athabaska area, company afficials state. In the past few weeks, a total of 25 radioactive occurrences have been picked up in the western section of this property. These are centered within an area 1,400-ft. long, and 800-ft. wide. Samples from a number of these new occurrences are now being sent out for assay. Work is also continuing on the company's two other groups: the new acquisition at Milliken Lake, just north of the Gunnar find, and on the Walberg group, near Melville Lake.....Work has now been started on the property of Fairbanks Uranium Mines, in the Beaverlodge area, Northern Saskatchewan. Detailed examination and mapping of geological and topographical features on and near the property are being undertaken initially. The property ties on to the west boundary of Eldorado Mining & Refining, and is about three miles west of that company's main camp.

BOOKS & OTHER PUBLICATIONS...in the nuclear energy field...

Supplement to Vol. 2 of International Bibliography On Atomic Energy. This is the first supplement to Vol. 2, issued last year by the United Nations. Vol. 2 listed more than 24,000 articles and books published in all parts of the world between 1925 and 1949 dealing with the scientific aspects of atomic energy. This new supplement lists more than 8,000 articles and books on the scientific aspects of atomic energy which were published in 1949 and 1950 throughout the world. --Sales Section, United Nations, New York. ($3.50) (Note: Vol. 2 is available at $10.00)

Radioactive Atoms and Isotopic Tracers, by J. W. Kennedy. Issued by the Departments of Chemistry and Chemical Engineering, of the Pennsylvania State College. 89 pages--School of Mineral Industries, Penn. State College, State College, Pa. ($2.00)

Atomic Energy Commission Supplement (to the Journal of American Chemical Society). This supplement, now available in reprint form, contains 23 papers and notes on labeled compound synthesis, as well as analytical methods. 57 pages.--American Chemical Society, 1115 16th St., N.W., Wash. 6, D.C. (75¢)

Geiger Counter Technique for X-Ray Diffraction. Work done at U.S. Naval Research Laboratory. Part III, $2.25 microfilm; $5.00 photostat. Part IV, $2.50 microfilm; $6.25 photostat. Part V, $2.00 microfilm; $3.75 photostat.....Studies on Radioactive Bromine. Research performed at Chalmers University of Technology, Gothenburg, Sweden. $2.25 microfilm; $6.25 photostat.....Available from Library of Congress, Photoduplication Sect., Washington 25, D.C., in microfilm and/or photostat at prices stated.

A "First Book" on Fire Safety in the Atomic Age, by Horatio Bond, Chief Engineer, National Fire Protection Assoc. Outlines building safety measures which would reduce fire damage and increase survival rates in case of an atomic bomb attack on cities. Originally presented as a paper at MIT, the book provides preliminary references for engineers, architects, and industrial managers-- National Fire Protection Association, 60 Batterymarch Place, Boston 10, Mass. ($3.00)

ATOMIC PATENT DIGEST...latest U.S. grants & applications.....

GRANTS- Uranium purification as complexes of esters of trifluoroacetoacetic acid. U. S. Pat. No. 2,614,113 issued Oct. 14th, 1952; assigned to United States of America (USAEC).

Apparatus for chemical reaction detection. In part, comprising the combination of a reaction bomb constituting a chamber and a sonic vibration detector adjacent the chamber. U. S. Pat. No. 2,614,645 issued Oct. 21st, 1952; assigned to United States of America (USAEC).

Current measuring device. A device for measuring minute electrical currents. U. S. Pat. No. 2,615,063 issued Oct. 21st, 1952; assigned to United States of America (USAEC).

Synchro-cyclotron. Improvements in apparatus for accelerating charged particles. U. S. Pat. No. 2,615,129 issued Oct. 21st, 1952; assigned to United States of America (USAEC).

Mass analyzing apparatus. U. S. Pat. No. 2,615,135 issued Oct. 21st, 1952; assigned to United States of America (USAEC).

Extraction of cerium with an organic solvent. Process for the separation of cerium values from an aqueous solution containing cerium nitrate in a tracer concentration. U. S. Pat. No. 2,615,798 issued Oct. 28th, 1952; assigned to United States of America (USAEC).

Time-delay relay testing device. Apparatus for the measurement of elapsed time. U. S. Pat. No. 2,615,967 issued Oct. 28th, 1952; assigned to United States of America (USAEC).

Stabilizer arrangement for cyclotrons and the like. U. S. Pat. No. 2,616,042 issued Oct. 28th, 1952; assigned to United States of America (USAEC).

APPLICATIONS- Radioactive toxic warfare weapon. This application discloses a method of contaminating water with a radioactive toxic material, in furtherance of military objectives. The water is contaminated by spreading radioactive toxic material in a thin film over the surface. The thin film is formed by including with the radioactive toxic material a liquid organic spreading agent.--Application No. 769,995, filed Aug. 21, 1947. Assigned to United States of America (USAEC) by Jack De Ment, Portland, Oregon.

Radioactive product and method of producing it. Disclosed by this application is a process for separating americium from contaminants in an aqueous solution utilizing pentavalent plutonium as a carrier. The separated material comprises a radioactive product. --Application No. 72,754, filed Jan. 25, 1949, by Louis B. Werner, Berkeley, Calif.

Composition for atomic flash protection. This application is concerned with a composition applicable upon the outer surface of the body prior to an atomic explosion in order to lessen some of the injurious flash effects of such an explosion.--Application No. 79,113, filed Mar. 1, 1949, by Jack DeMent, Portland, Oregon.

Pressure responsive relay. The disclosure in the application relates to an apparatus which produces an electrical signal in response to changes in pressure differential.--Application No. 133,446, filed Dec. 16, 1949. Assigned to the United States of America (USAEC) by E. T. Booth, Jr., New York, N.Y., and S. J. Cromer, Oak Ridge, Tenn.

Method of separating element 95 from element 96. This disclosure relates to a thermal fractionation method of separating curium-americium mixtures, particularly those resulting from production of curium by a nuclear reaction. Application No. 99,776, filed June 17th, 1949, by O. C. Simpson, Chicago, Ill., and N. D. Erway, Oregon, Wisc.

Note: The above applications were published Oct. 28th, 1952; photostat copies may be purchased from the U.S. Patent Office, where inquiries should be made.

Sincerely,

The Staff,
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